

Rec'd PCT/PTO 01 JUL 2004

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
17 July 2003 (17.07.2003)

PCT

(10) International Publication Number
WO 03/058839 A1(51) International Patent Classification⁷: H04B 1/707,
H04L 27/23(74) Agent: DULVESTIJN, Adrianus, J.; Internationaal Oc-
trooibureau B.V., Prof. Holstlaan 6, NL-5656 AA Eind-
hoven (NL).

(21) International Application Number: PCT/IB02/05352

(22) International Filing Date: 9 December 2002 (09.12.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
02075027.9 7 January 2002 (07.01.2002) EP(71) Applicant (for all designated States except US): KONIN-
KLIJKE PHILIPS ELECTRONICS N.V. [NL/NL];
Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventors; and

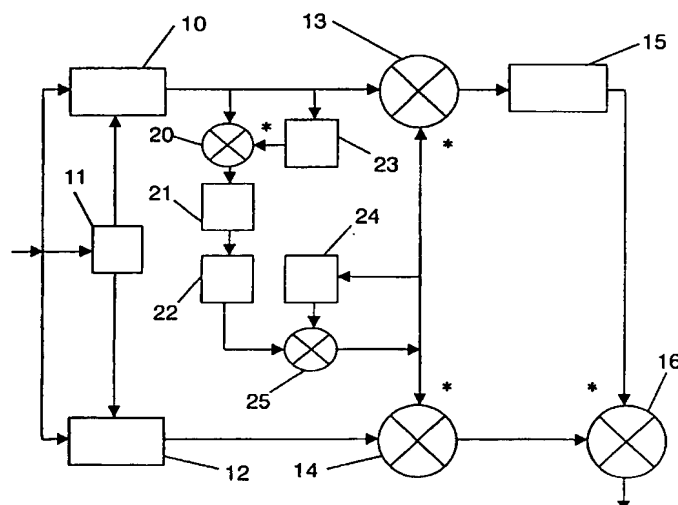
(75) Inventors/Applicants (for US only): XU, Luzhou
[CN/NL]; Prof. Holstlaan 6, NL-5656 AA Eindhoven
(NL). WANG, Dong [CN/NL]; Prof. Holstlaan 6,
NL-5656 AA Eindhoven (NL).(81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE,
SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,
VC, VN, YU, ZA, ZM, ZW.(84) Designated States (regional): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK,
TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

[Continued on next page]

(54) Title: RAKE RECEIVER WITH INDIVIDUAL FINGER COMPENSATOR(S)



(57) Abstract: Rake receivers in code division multiple access (CDMA) telecommunication comprise fingers (1,2,3) with each finger processing signal components for a particular transmission path to be able to better synchronize with a RF signal received via different paths, and a combiner (4) for combining the results originating from said fingers, and a compensator in the form of a controlled oscillator in a feedback loop. By locating a finger compensator (20-25) in a finger, said finger can handle complex situations, like Doppler shifts under high-speed conditions. Preferably, most or all fingers each comprise such a finger compensator, in which case said feedback loop can be avoided. Such a finger compensator can be hardware, software or a mixture of both when comprising a filter (21) plus an amplitude normalizer (22) between two arithmetical modules (20,25) for multiplying an input symbol signal with a conjugated previous input symbol signal and an output symbol signal with a previous output symbol signal.